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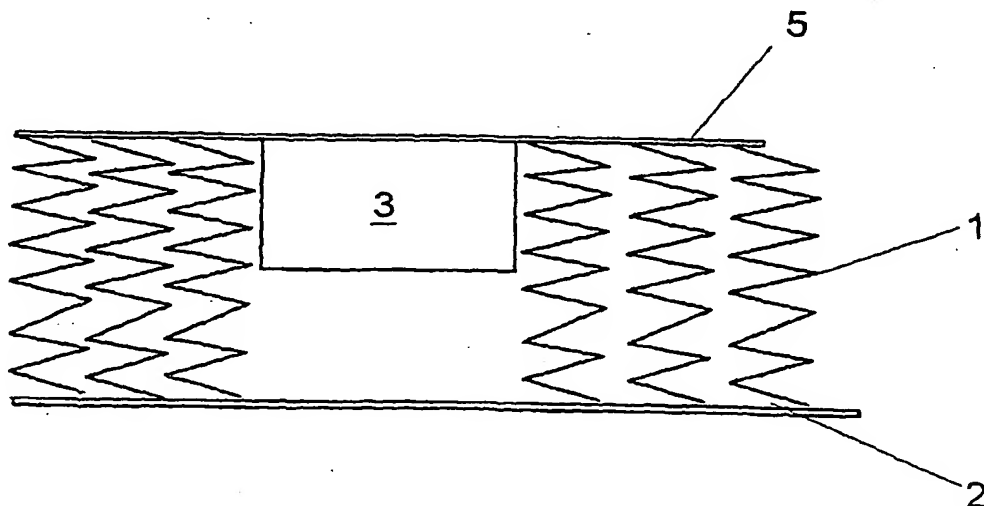
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AN ARRANGEMENT AT MOUNTING MASSAGE MOTOR



(57) Abstract: The present invention relates to an arrangement for fitting a massage motor in a coil spring assembly of a bed, an armchair or the like, wherein the massage motor (3) is fitted inside the coil spring assembly; and wherein said motor (3) is connected to the upper side of at least some of the springs (1) in the coil spring assembly.

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A massage motor mounting arrangement

The present invention relates to an arrangement for mounting
5 a massage motor in a coil spring assembly of a bed, an arm-
chair or the like.

It is known to use massage motors in beds that include a coil
spring assembly, to impart a given massaging effect to the
10 person lying on the bed. In the case of these known motors,
the motor is mounted on the existing bed frame on the under-
side of the bed such that motion of the motor will cause the
bed frame to move, and therewith also the springs fitted to
the frame, so as to impart a massaging effect to the person
15 lying on the coil spring assembly. Naturally, a large amount
of the motion generated by the motor will be lost by virtue
of the fact that the whole of the bed frame shall be set into
motion. Consequently, propagation of such movement up through
the coil spring assembly and the efficiency of the arrange-
20 ment will be low.

Accordingly, an object of the present invention is to provide
a novel massage motor mounting arrangement which enables the
efficiency of the massage motor to be significantly enhanced.

25 This object is achieved with an arrangement in which the
massage motor is fitted within the coil spring assembly and
connected with the upper side of the springs.

30 According to one particularly preferred embodiment of the
invention movement transmission elements are connected to the
massage motor and extends outwardly therefrom to a number of

springs, said elements being connected to said springs and functioning to transfer movement from the motor to the springs.

5 The invention will now be described with reference to a non-limiting embodiment thereof and also with reference to the accompanying drawings, in which Figure 1 is a schematic illustration of an interior coil spring assembly to which a massage motor has been fitted in accordance with a known
10 technique; Figure 2 is a schematic illustration of an interior coil spring assembly to which a massage motor has been fitted in accordance with the present invention; and Figure 3 is a schematic plan view of an interior coil spring assembly to which a massage motor has been fitted in accordance with
15 the invention.

Thus, Fig. 1 is a sectioned view of part of a coil spring assembly that includes a number of mattress springs 1 disposed on a bed frame 2. By mattress springs is meant here
20 coil springs that are housed in separate cloth bags, so-called pocket springs. Fitted to the underside of the bed frame 2 is a massage motor 3, which is a simple imbalanced rotary motor. As the motor 3 rotates, its imbalance is caused to be transmitted to the bed frame therewith also causing the
25 springs 1 fitted to the bed frame to move. This movement is then transmitted through the springs 1 to the surface 4 of the coil spring assembly, so as to massage the person lying on the mattress.

30 As will be seen from Fig. 2, the inventive arrangement differs from the known arrangement illustrated in Fig. 1 by virtue of the fact that the massage motor 3 is now fitted within the coil spring assembly, between the springs 1, in-

stead of being mounted on the actual bed frame beneath the coil spring assembly, and by virtue of the fact that the motor is fastened in an attachment plate 5 that is connected to the upper part of at least some of the springs 1. Activation of the motor 3 causes the plate 5 to move and therewith immediately influence the upper parts of the springs 1. Motion of the motor 3 is therewith transmitted effectively to that part of the mattress springs 1 that lie closest in contact with the person lying on the mattress.

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As before mentioned, Fig. 3 is a plan view of a coil spring assembly which has a massage motor fitted therein in accordance with the invention. It will be seen from the Figure that springs 1 are mounted in a manner to form a generally rectangular coil spring assembly. A pair of springs have been removed, or omitted, from the mattress, roughly in its centre, to provide in said assembly a space in which the massage motor 3 can be fitted. This is also shown in Fig. 2. The motor is mounted on the underside of an attachment plate 5 that is connected to the upper side of at least those springs 1 that nearest surround the motor 3. The motion of the motor is transmitted to the surrounding springs 1, therewith imparting a massaging effect to the person lying on the coil spring assembly.

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It will be seen that the Figure 3 embodiment includes a number of plastic membranes 6 that are connected to the motor 3/the attachment plate 5 and that extend diagonally out to the corners of the coil spring assembly. This provides highly effective spreading of the movement from the motor 3 to the springs 1 in the coil spring assembly. In the case of the illustrated embodiment, the plastic membranes 6 are rela-

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tively rigid elements that are connected to those springs 1 that lie beneath the membranes 6.

It will be understood that other types of movement transmission elements may be used instead of said plastic membranes, for instance spring steel wires that extend out from the massage motor 3/the attachment plate 5 to different parts of the coil spring assembly, such as to transmit motion of the motor 3 to a larger number of the springs 1.

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The inventive arrangement of the massage motor provides effective transmission of the motion of the motor and a much higher degree of efficiency than hitherto known systems of this nature. Instead of vibrating the entire bed frame, the inventive arrangement solely generates an oscillatory movement in the spring package.

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Although the invention has been described with reference to a coil spring assembly for a bed, it will be understood that the concept of the invention can also be applied in other applications in which a number of springs are combined to form a coherent spring pack, for instance in respect of arm-chairs, settees, automobile seats, etc..

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Claims

1. An arrangement for fitting a massage motor in a coil spring assembly of a bed, an armchair or the like, c h a -
5 r a c t e r i s e d in that the massage motor (3) is fitted inside the coil spring assembly; and in that said motor (3) is connected to the upper side of at least some of the springs (1) in the coil spring assembly.
- 10 2. An arrangement according to Claim 1, c h a r a c - t e r i s e d in that the massage motor (3) is fitted on the underside of an attachment plate (5) which is fastened to a number of springs (1).
- 15 3. An arrangement according to Claim 1 or 2, c h a r a c - t e r i s e d in that the massage motor (3) is mounted centrally in relation to the surface of the coil spring assembly, and in that a pair of springs (1) have been omitted to provide room for the massage motor (3).
- 20 4. An arrangement according to any one of the preceding Claims, c h a r a c t e r i s e d by movement transmission elements (6) connected to the massage motor (3) and extending out from said motor (3) to a number of springs (1), said
25 elements (6) being connected to the springs (1) so as to transmit the movement of the motor (3) to said springs (1).
- 30 5. An arrangement according to Claim 4, c h a r a c - t e r i s e d in that the movement transmission element (6) is a strip-like element extending out from the massage motor (3).

6. An arrangement according to Claim 5, characterised in that a plurality of strip-like movement transmission elements (6) are disposed to extend from the massage motor (3) to the corners of said coil spring assembly.

7. An arrangement according to Claim 4, characterised in that the movement transmission element (6) is comprised of spring steel wires or rods extending out from the massage motor (3).

ABSTRACT OF THE DISCLOSURE

The present invention relates to an arrangement for fitting a massage motor in a coil spring assembly of a bed, an armchair or the like, wherein the massage motor (3) is fitted inside the coil spring assembly; and wherein said motor (3) is connected to the upper side of at least some of the springs (1) in the coil spring assembly.

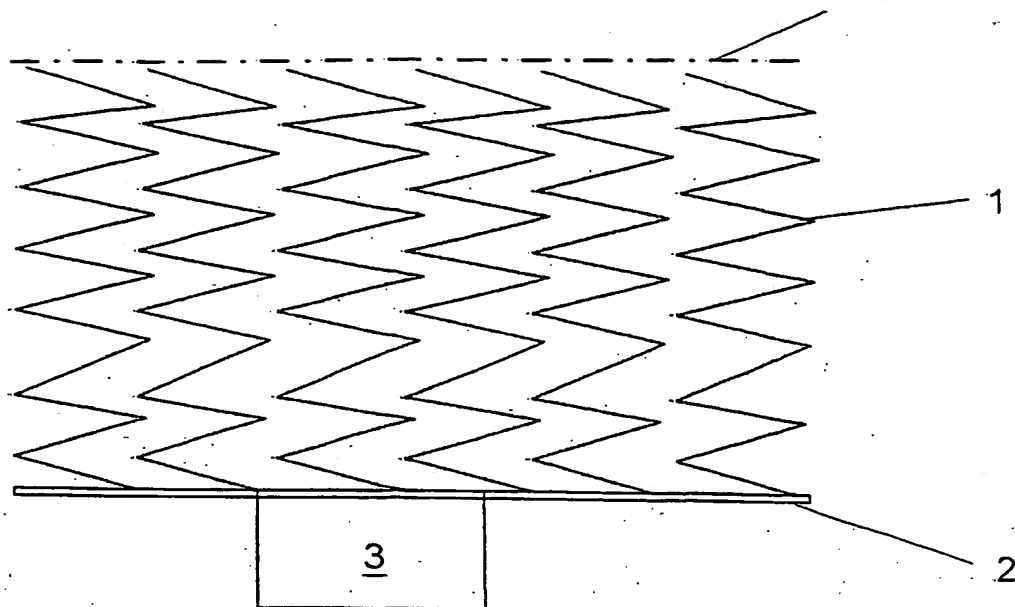


Fig. 1

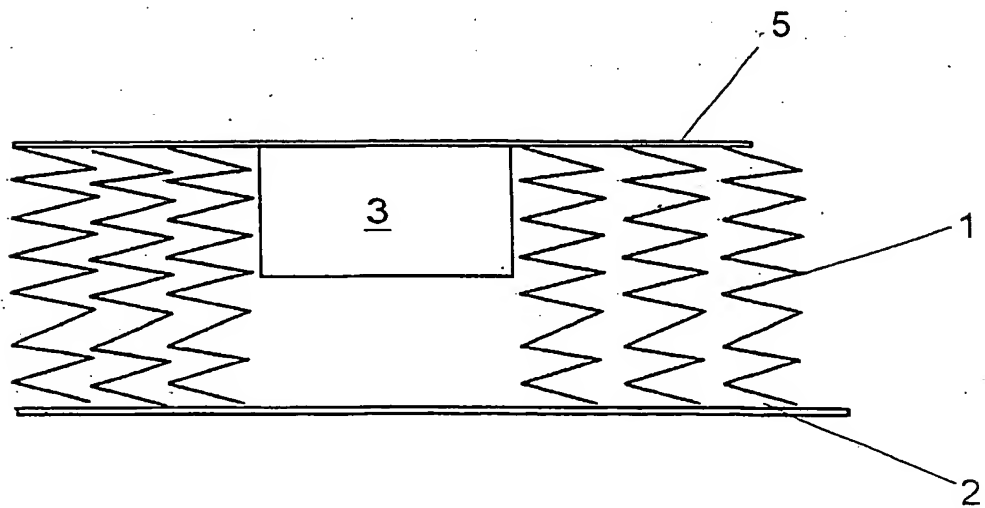


Fig. 2

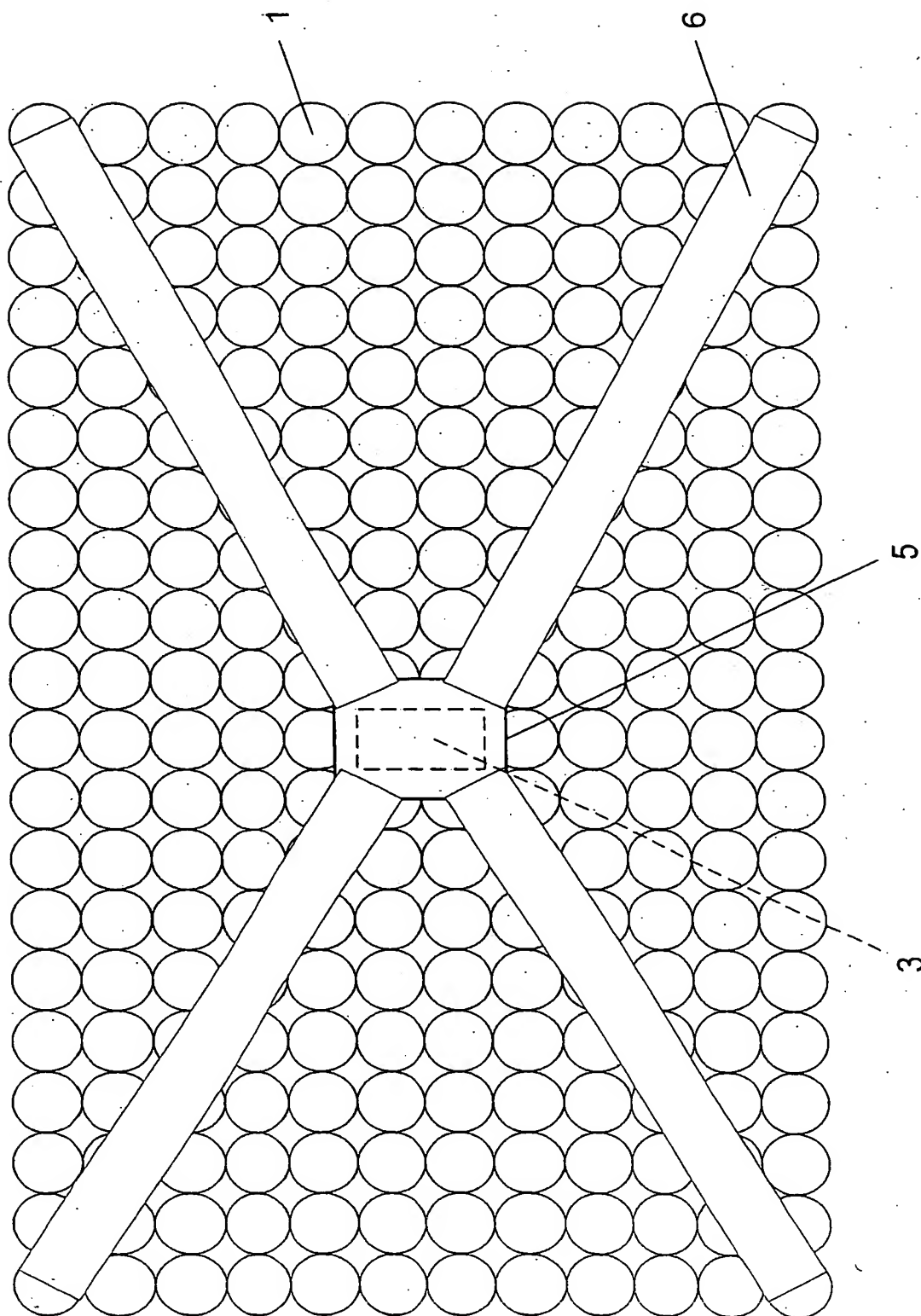


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC7: A61H 1/00 // A47C 23/00, A47C 23/04
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: A61H, A47C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4061137 A (CLAYTON SANDT), 6 December 1977 (06.12.77), figure 3, abstract, details 28,82 and 86	1-3
Y	--	1-7
Y	GB 2172504 A (DAVID HENRY FERGUSON), 24 Sept 1986 (24.09.86), figure 1, description, page 1, lines 10-18	1-7
A	GB 2294393 A (LAI CHOU), 1 May 1996 (01.05.96), figure 5, abstract	1-7

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>US 4412533 A (DORIS S. CALLAHAN), 1 November 1983 (01.11.83), figures 1-6, claims 1-9</p> <p style="text-align: center;">-- -----</p>	1-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

29/03/03

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Patent document cited in search report			Publication date	Patent family member(s)	Publication date
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GB	2294393	A	01/05/96	FR 2725363 A,B GB 9420928 D US 5542907 A	12/04/96 00/00/00 06/08/96
US	4412533	A	01/11/83	NONE	